

ABSTRACT

A combination camera and loudspeaker is described herein. The combination camera and loudspeaker includes a lens for selectively manipulating an image and a loudspeaker assembly disposed proximate the lens for projecting audible sounds. In one embodiment, a transparent piezo-electric aligned with at least a portion of the lens projects audible sound based on electrical signals applied to the piezo-electric diaphragm. In another embodiment, a speaker coil and magnet within the loudspeaker assembly encircles an outer perimeter of the lens, while a transparent diaphragm connected to the speaker coil and aligned with at least a portion of the lens projects audible sound based on the interaction between the speaker coil and magnet. The camera captures an image when light is transmitted through the transparent diaphragm to the camera lens. Further, the combination camera and loudspeaker may include a controller for selectively controlling optical properties of the transparent diaphragm.

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